

REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

By this amendment, claims 19-27 have been canceled and claims 28-39 added. Thus, claims 28-39 remain pending.

Claims 28-39 are similar to claims 19-27 in that they generally include recitations to signal transmission and/or receiving apparatuses or methods, trellis encoding and/or decoding, and modulation and/or demodulation. The new claims 28-39 differ from claims 19-27 by not reciting interleaving/deinterleaving, and by including additional recitations drawn to first and second ECC encoding/decoding. Support for the new claim recitations can be found at least at: column 31, lines 1-12. If the Examiner requires further supporting passages, she is invited to contact the undersigned by telephone.

A substitute specification is filed herewith to make amendments to the specification. Also, proposed drawing amendments and new formal drawings incorporating the proposed drawing amendments are filed herewith. No new matter has been added.

Claims 19-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Basile et al. This rejection is traversed and is inapplicable to new claims 28-29.

Apparatus claims 28 and 30 each include recitations of a first error correction code encoder operable to Reed Solomon encode a data stream to produce a first ECC encoded data stream, and a second error correction code encoder operable to Reed Solomon encode the first ECC encoded data stream to produce a second ECC encoded data stream which is then trellis encoded, modulated, and transmitted. Similarly, method claims 31 and 33 recite Reed Solomon encoding a data stream to produce a first ECC encoded data stream, and Reed Solomon encoding the first ECC encoded data stream to produce a second ECC encoded data stream which is then trellis encoded, modulated, and transmitted.

With respect to the receiving side, apparatus claims 29 and 30 include recitations drawn to demodulation and trellis decoding, and recite a first error correction code decoder operable to Reed Solomon decode the trellis decoded data stream to produce an ECC decoded data stream, and a

second error correction code decoder operable to Reed Solomon decode the ECC decoded data stream to produce the data stream. Method claims 32 and 33 include recitations drawn to demodulation and trellis decoding, and recite Reed Solomon decoding the trellis decoded data stream to produce an ECC decoded data stream, and Reed Solomon decoding the ECC decoded data stream to produce the data stream.

Another arrangement of the ECC encoding/decoding is recited in claims 34-39. Specifically, apparatus claims 34 and 36 recite a first error correction code encoder operable to Reed Solomon encode a first data stream to produce a first ECC encoded data stream, and a second error correction code encoder operable to Reed Solomon encode the first ECC encoded data stream and a second data stream to produce a second ECC encoded data stream which is then trellis encoded, modulated, and transmitted. Likewise, method claims 37 and 39 recite Reed Solomon encoding a first data stream to produce a first data stream, and Reed Solomon encoding the first ECC encoded data stream and a second data stream to produce a second ECC encoded data stream, which is then trellis encoded, modulated, and transmitted.

With respect to the receiving side of this ECC encoding/decoding arrangement, apparatus claims 35 and 36 recite a first error correction code decoder operable to Reed Solomon decode the trellis decoded data stream to produce an ECC decoded data stream and the second data stream, and that the second error correction code decoder is operable to Reed Solomon decode the ECC decoded data stream to produce the first data stream. The comparable method claims 38 and 39 recite Reed Solomon decoding the trellis decoded data stream to produce an ECC decoded data stream and the second data stream, and Reed Solomon decoding the ECC decoded data stream to produce the first data stream.

While the applied Basile reference discloses methods and apparatuses for transmission and reception of signals in which trellis encoding, modulation, trellis decoding, and demodulation are utilized, Basile does not disclose or suggest the claimed arrangements of first and second Reed Solomon encoding/decoding as recited in claims 28-39 as set forth above. Moreover, it is submitted that such arrangements would not have been obvious to a person having ordinary skill in the art in

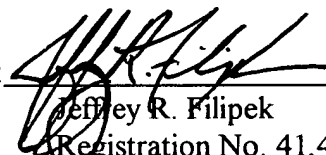
view of the teachings Basile. Accordingly, it is submitted that claims 28-39 are allowable over Basile et al. and the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is in condition for allowance. The Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues.

Respectfully submitted,

Mitsuaki OSHIMA et al.

By: _____


Jeffrey R. Filipek
Registration No. 41,471
Attorney for Patentees

JRF/fs
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
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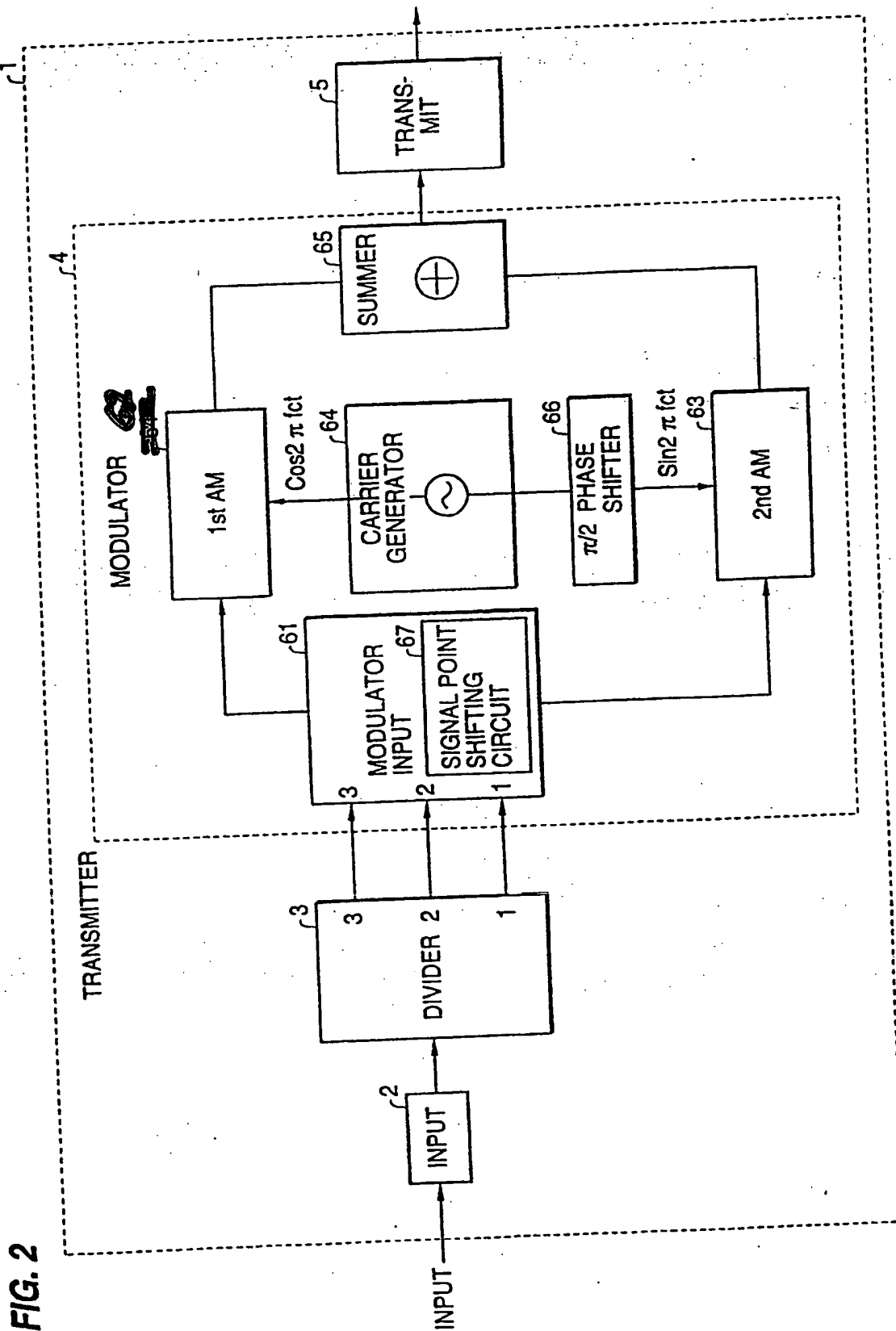


FIG. 10

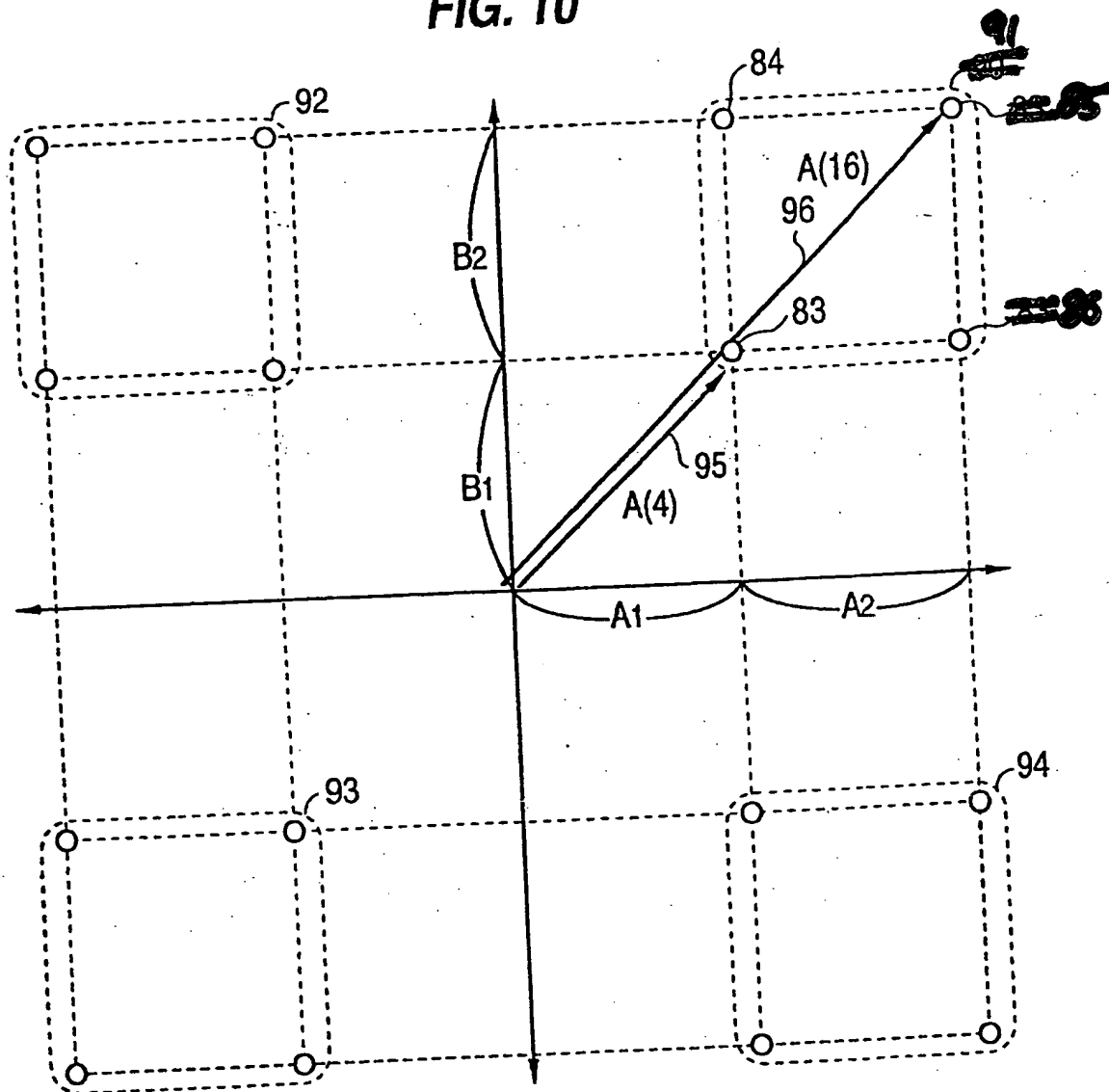
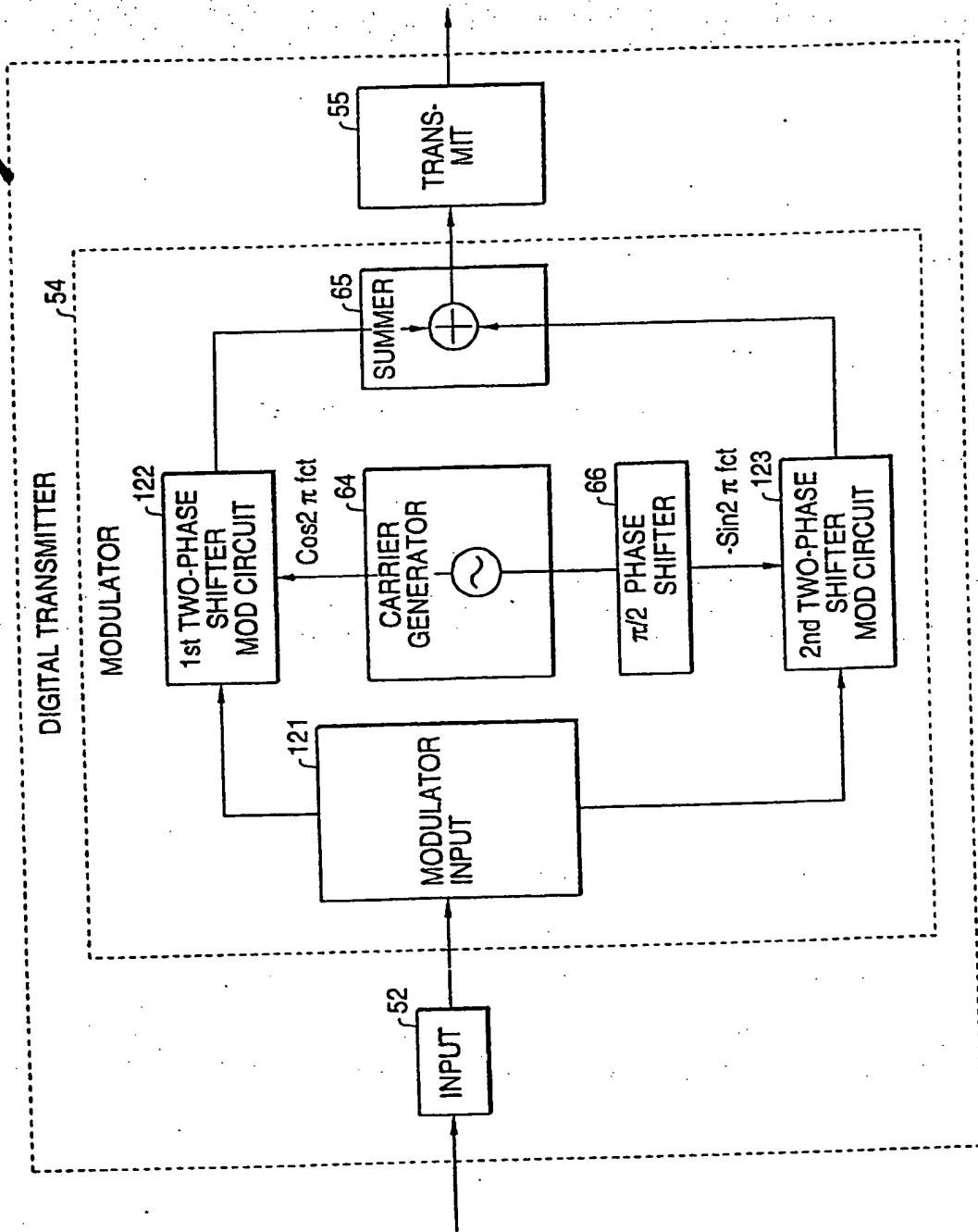


FIG. 17



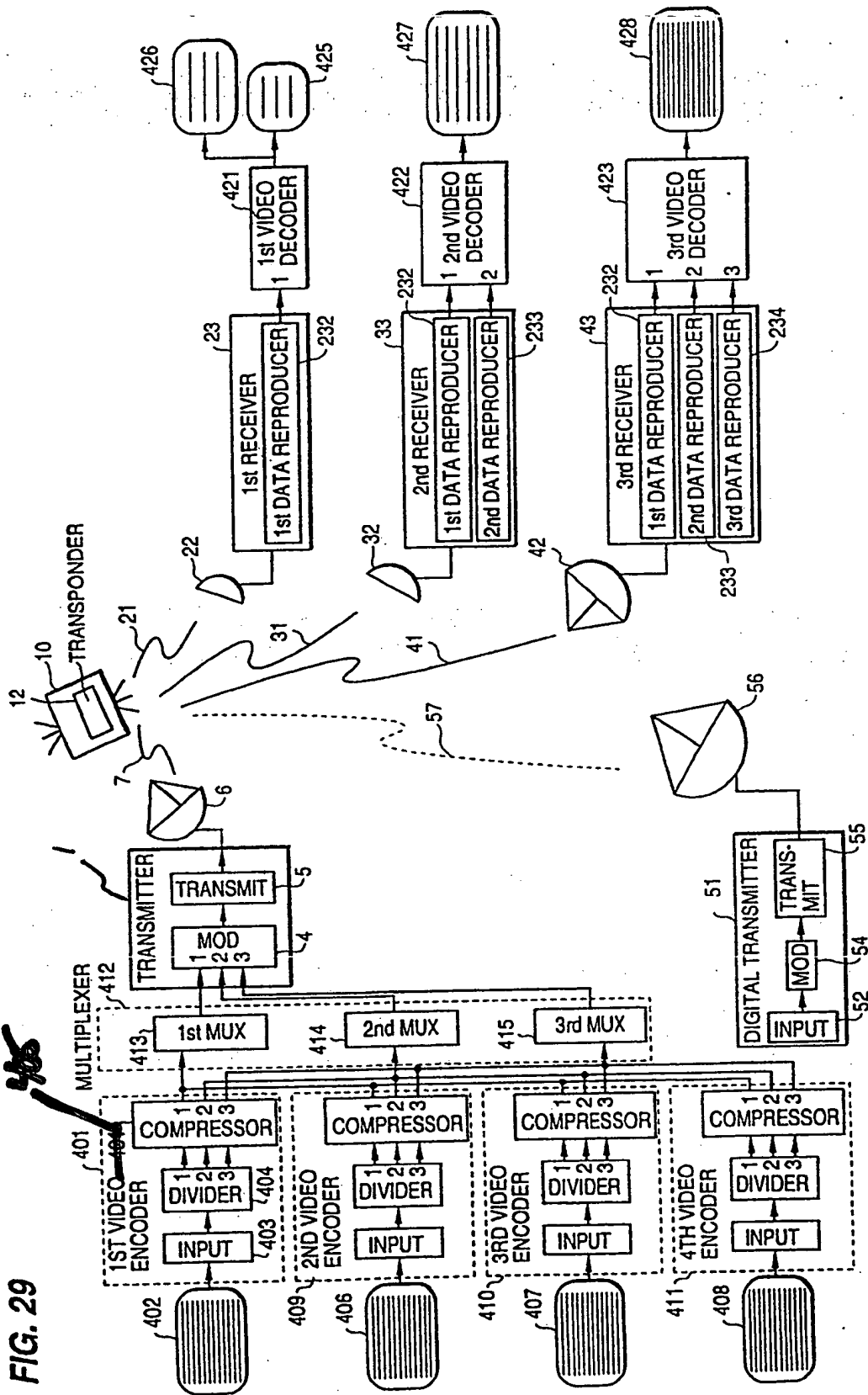


FIG. 48

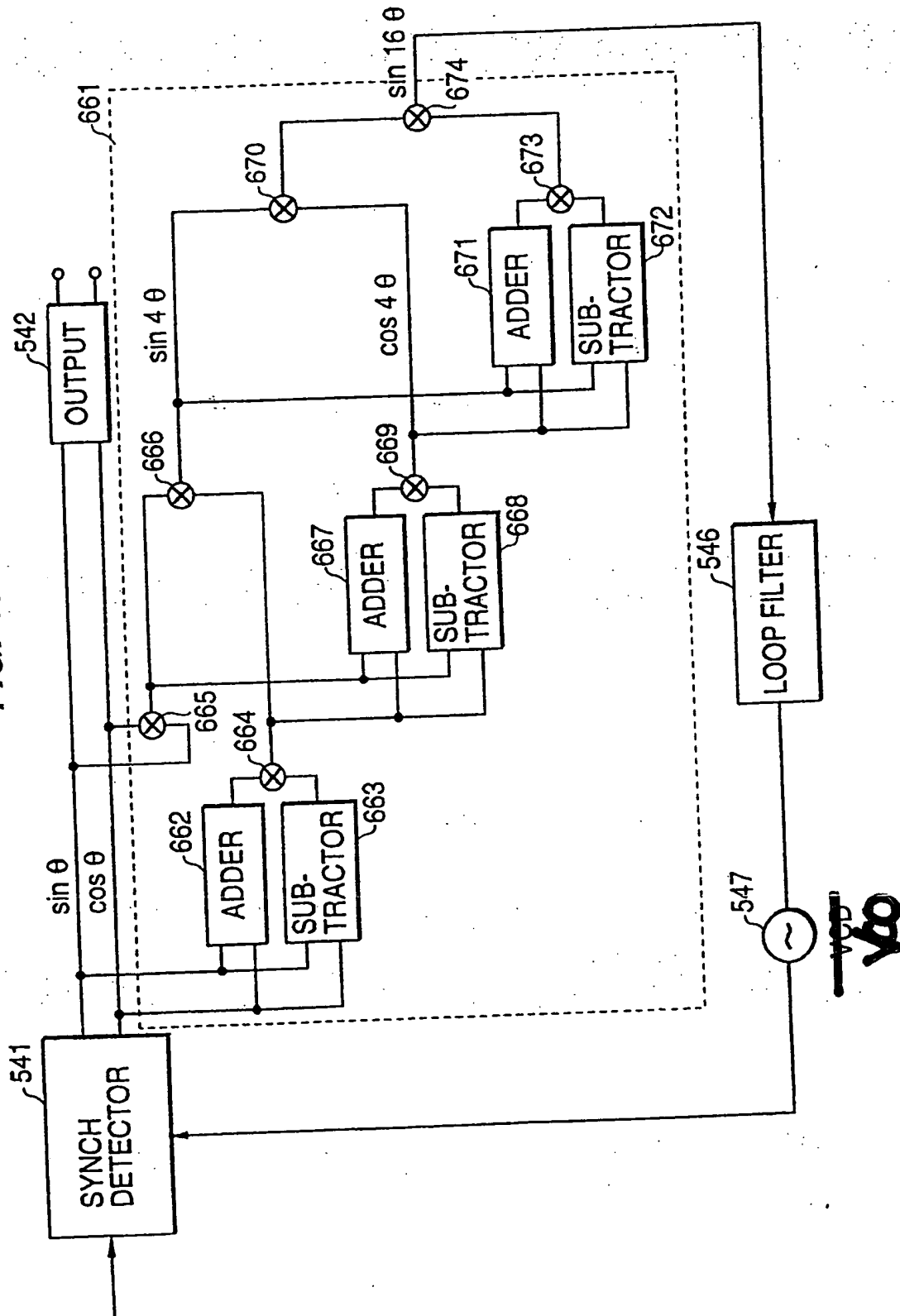
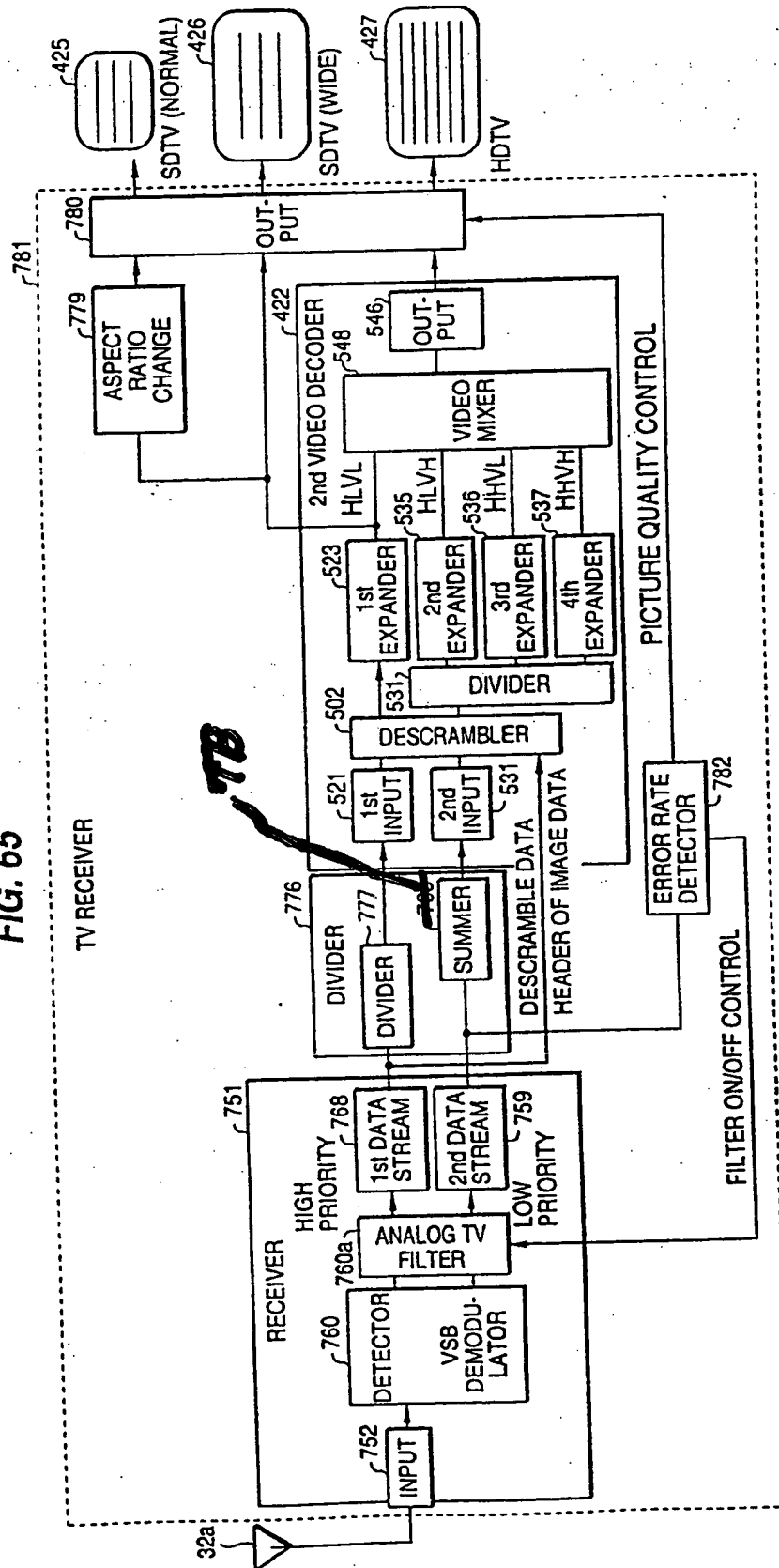


FIG. 65



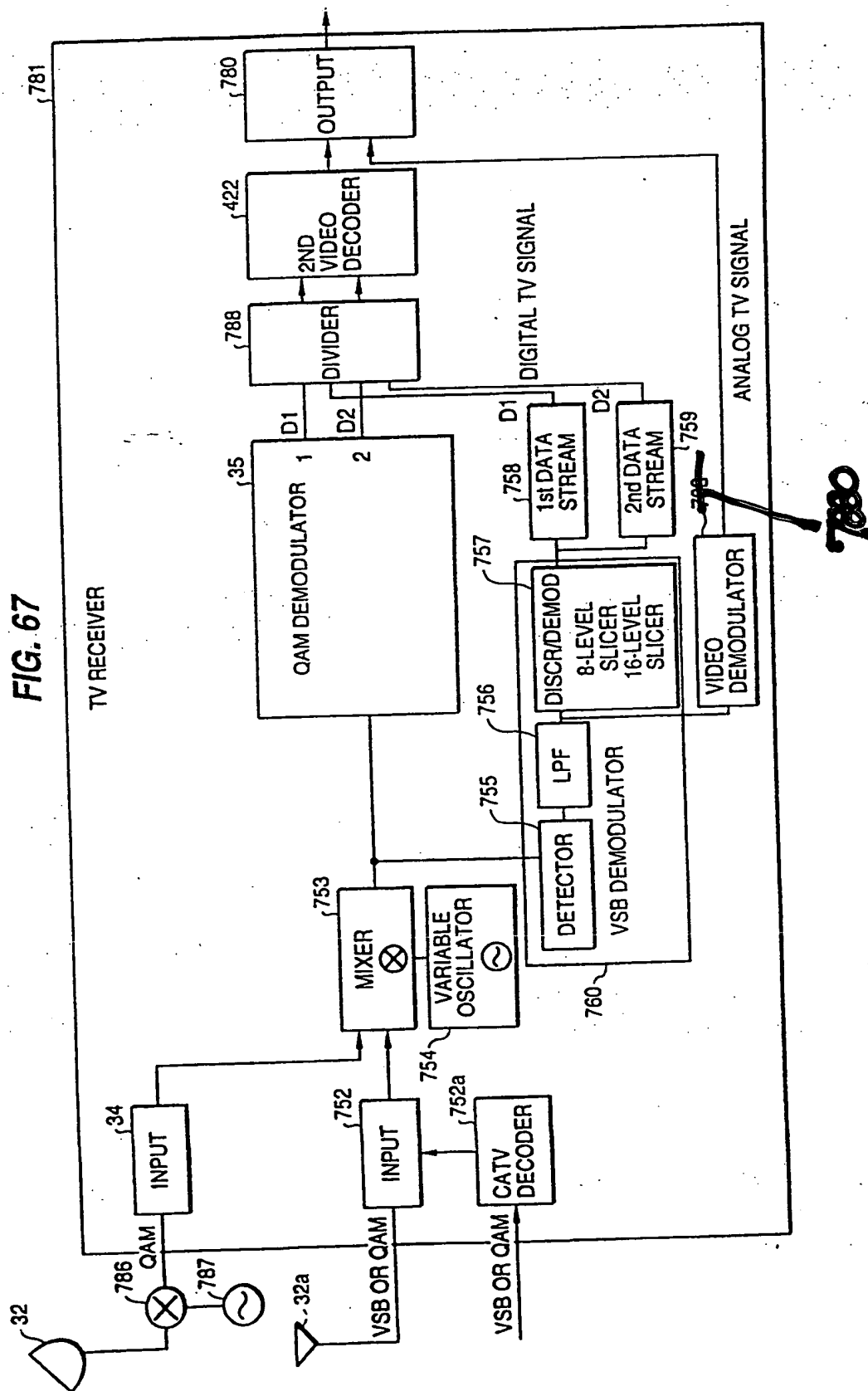


FIG. 93

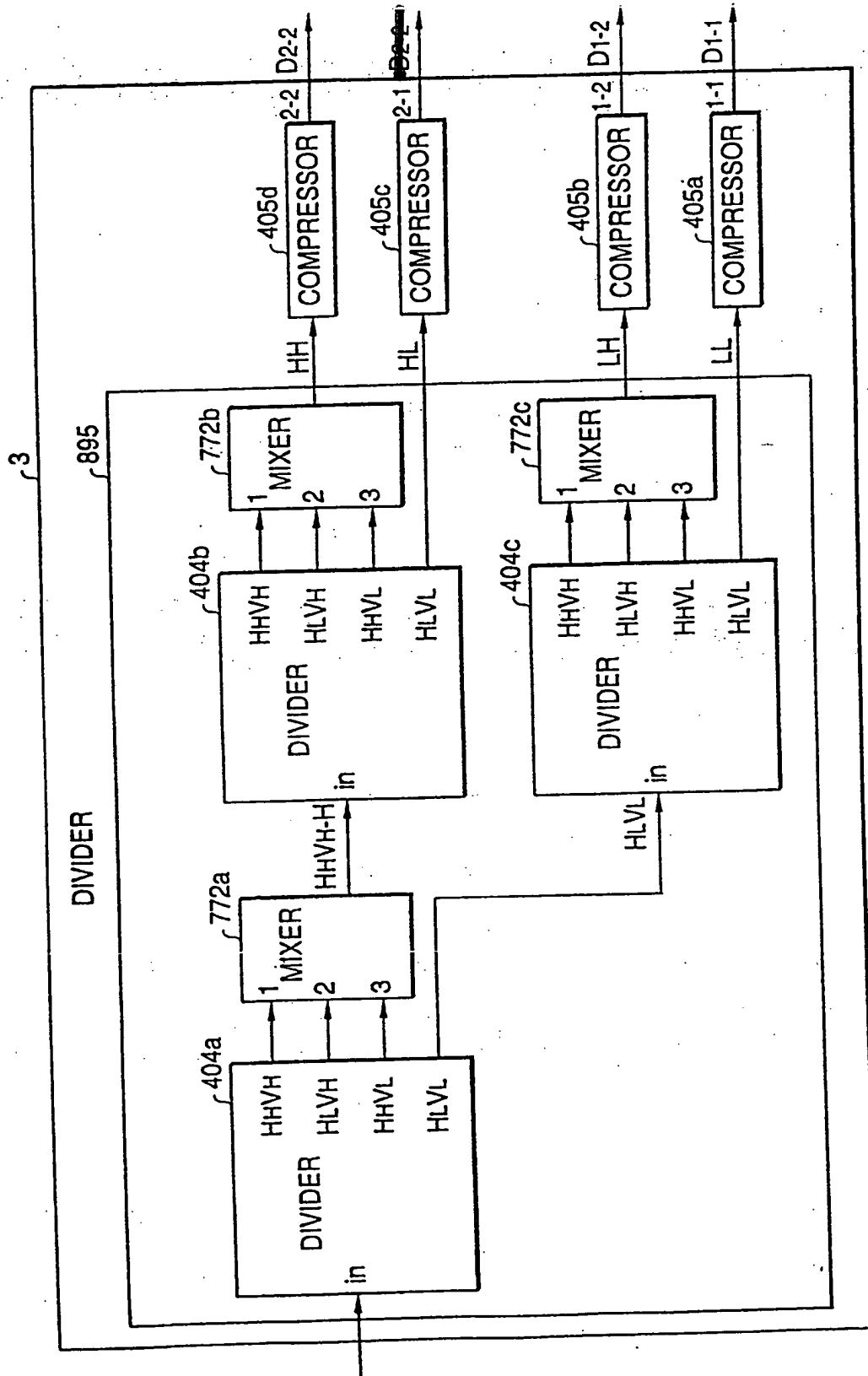
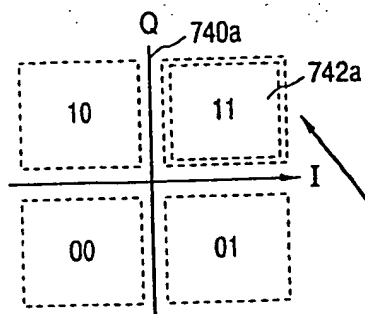
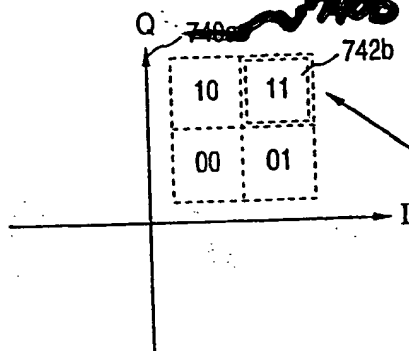


FIG. 112

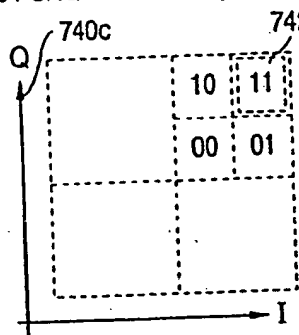
SUBCHANNEL-1 (SRQAM:D1 = 2bit)



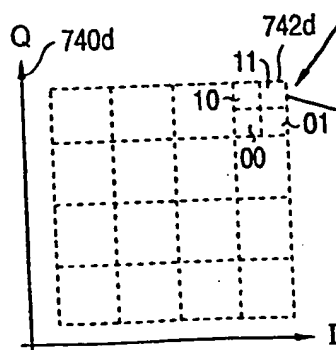
SUBCHANNEL-2 (16-SRQAM:D2 = 2bit)



SUBCHANNEL-3 (64-SRQAM:D3 = 2bit)



SUBCHANNEL-4 (256-SRQAM:D4 = 2bit)



CODE WORD-1

CODE WORD-2

CODE WORD-3

CODE WORD-4

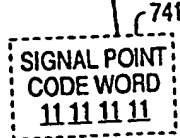
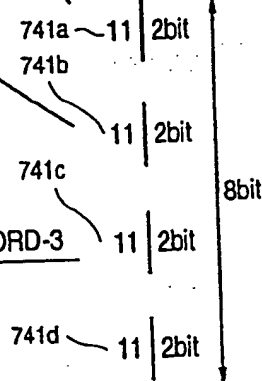
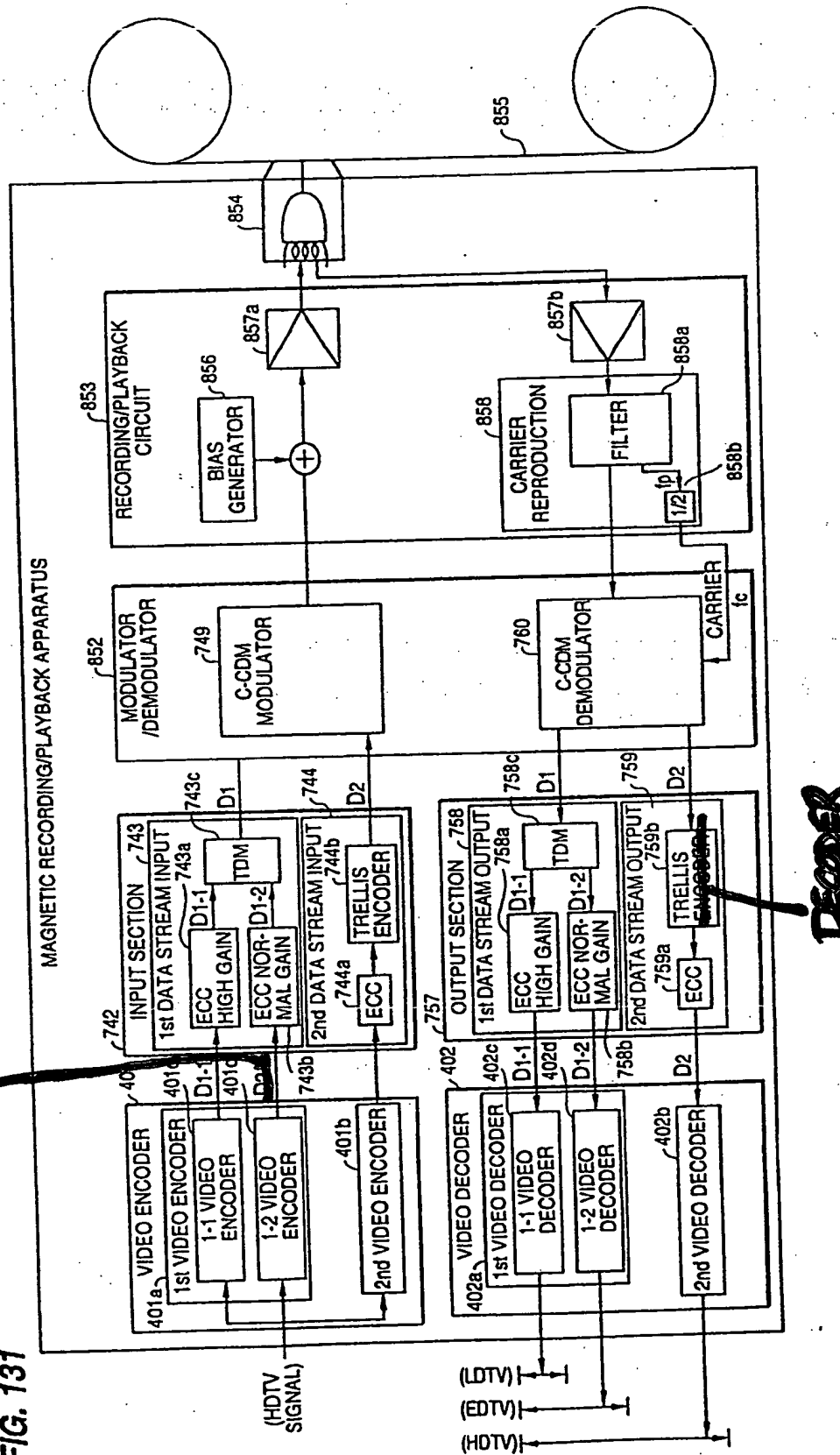
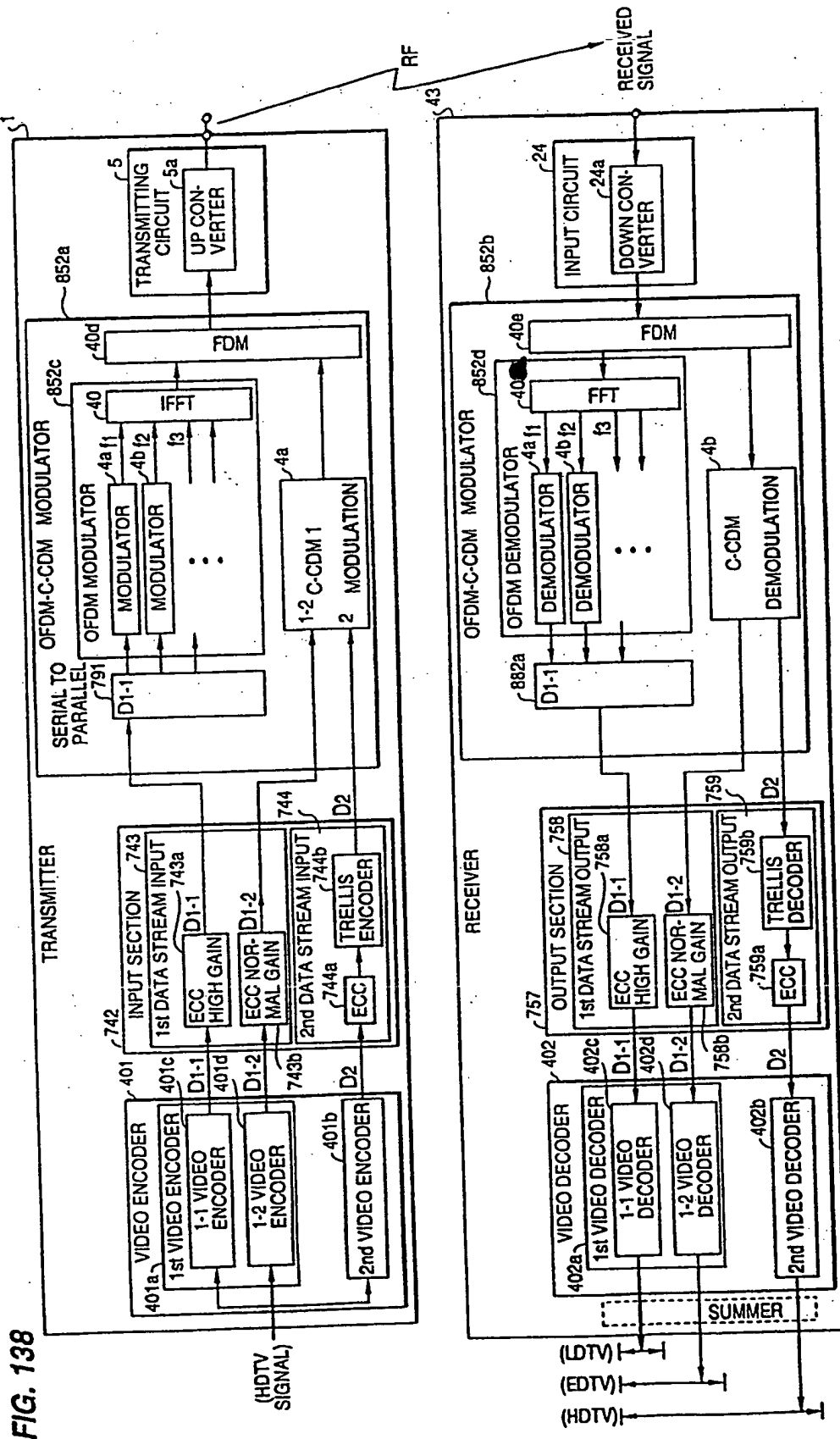


FIG. 131





The diagram illustrates a video transmission system, divided into a TRANSMITTER (left) and a RECEIVER (right).

TRANSMITTER:

- Input Section (742):** Receives an (HDTV SIGNAL). It includes a VIDEO ENCODER (401) with a 1st VIDEO ENCODER (401c) and a 2nd VIDEO ENCODER (401b). The output of the 1st video encoder goes through an ECC (743c) and a HIGH GAIN block (D1-1) to produce the 1st DATA STREAM INPUT (743a). The output of the 2nd video encoder goes through an ECC (743b) and a MAL GAIN block (D1-2) to produce the 2nd DATA STREAM INPUT (743b).
- Trellis Encoder (744):** Takes the two data stream inputs and outputs a TDM signal (744a) to a TRELLIS ENCODER (744b).
- Serial to Parallel (D2):** Converts the TDM signal into a parallel format (791a).
- Weighted OFDM-Modulator (4):** Consists of multiple MOD. blocks (4a f1 to 4e f7) that process the parallel data.
- IFFT (40):** Processes the modulated signals.
- D/A Converter (4e):** Converts the digital signals to analog.
- Transmit Circuit (5):** Includes an UP CON-VERTER (5a) that outputs an RF signal.

RECEIVER:

- Serial to Parallel (D2):** Converts the received signal (791a) back into a parallel format.
- Weighted OFDM-Demodulator (45):** Consists of multiple DEMOD. blocks (45a f1 to 45e f7) that process the parallel data.
- A/D Converter (40c):** Converts the analog signals to digital.
- FFT (40a):** Processes the digitized signals.
- Input Circuit (24):** Includes a DOWN CON-VERTER (24a) that receives a RECEIVED SIGNAL.
- Output Section (757):** Takes the processed signals and outputs them through an ECC (758c) and a HIGH GAIN block (D1-1) to produce the 1st DATA STREAM OUTPUT (758a), and through an ECC (758b) and a MAL GAIN block (D1-2) to produce the 2nd DATA STREAM OUTPUT (758b).
- Trellis Decoder (759):** Takes the two data stream outputs and outputs a TDM signal (759a) to a TRELLIS DECODER (759b).
- Video Decoder (402):** Includes a 1st VIDEO DECODER (402c) and a 2nd VIDEO DECODER (402b). The output of the 1st video decoder goes through an ECC (759c) and a HIGH GAIN block (D1-1) to produce the 1st VIDEO DECODER output (759a). The output of the 2nd video decoder goes through an ECC (759b) and a MAL GAIN block (D1-2) to produce the 2nd VIDEO DECODER output (759b).
- Summer:** Combines the outputs of the two video decoders to produce the final (LDTV), (EDTV), and (HDTV) signals.

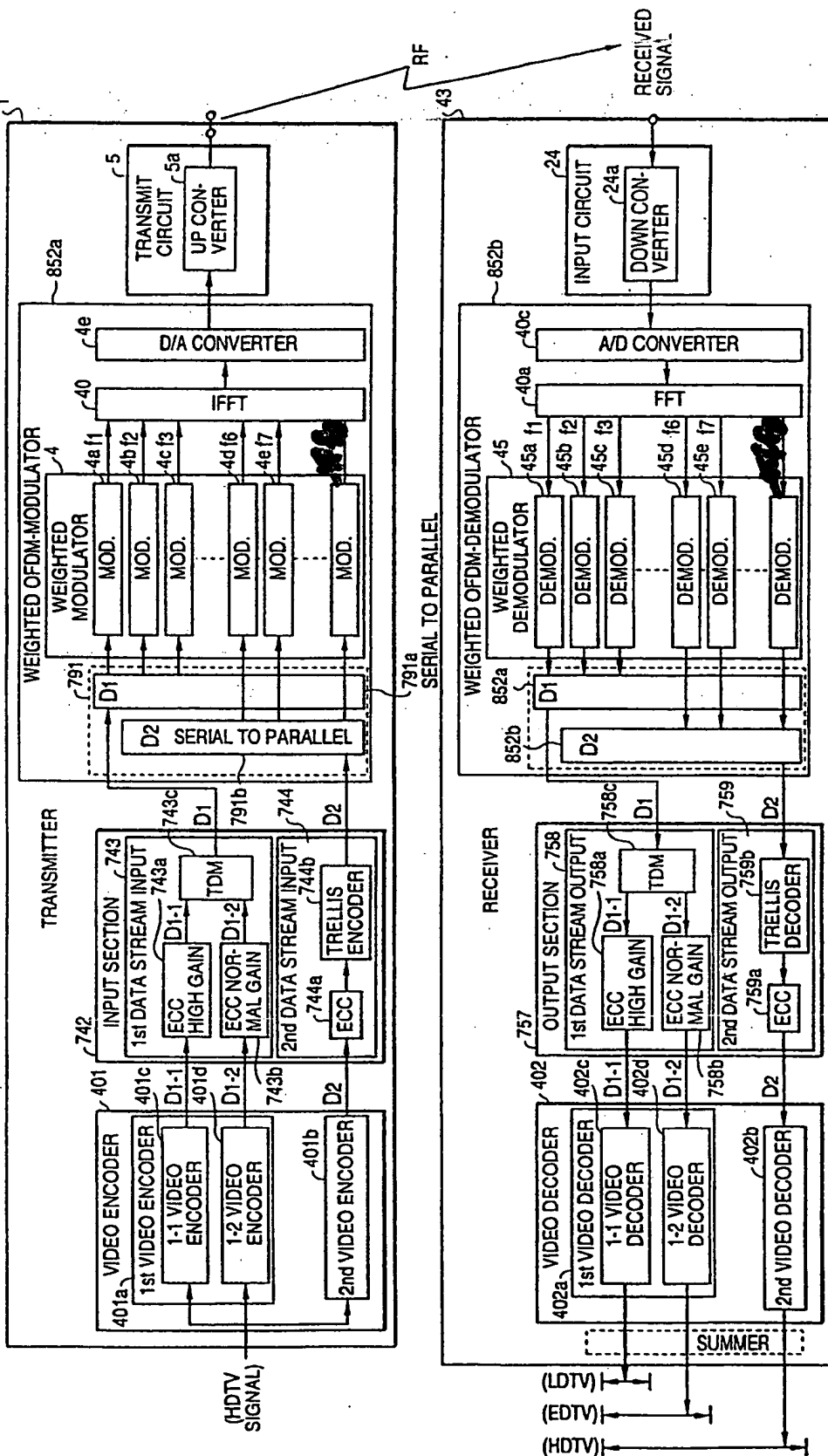


FIG. 169

